

a sucrose molecule, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

(a) a nucleotide sequence of SEQ ID NO:1,

(b) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:2,

(c) a nucleotide sequence of SEQ ID NO:3,

(d) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:4,

(e) a nucleotide sequence of SEQ ID NO:5,

(f) a nucleotide sequence encoding the amino acid sequence of

SEQ ID NO:6,

(g) a nucleotide sequence of SEQ ID NO:7,

(h) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:8,

(i) a nucleotide sequence obtainable from a polynucleotide which is amplifiable from a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:9, SEQ ID NO:15, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, and SEQ ID NO:58 and a PCR primer selected from the group consisting of SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:17, and SEQ ID NO:53, wherein said nucleotide sequence is hybridizable with a nucleotide sequence complementary to the nucleotide sequence of (a) or (b), in 0.9 M NaCl, 0.09 M citric acid at 65°C,

(j) a nucleotide sequence obtainable from a polynucleotide which is amplifiable from a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:12, SEQ ID NO:19, SEQ ID NO:65, and SEQ ID NO:68 and a PCR primer selected from the group consisting of SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:21, and SEQ ID NO:70, wherein said nucleotide sequence is hybridizable with a nucleotide sequence complementary to the nucleotide sequence of (c) or (d), in 0.9 M NaCl, 0.09 M citric acid at 65°C,

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COO.4. (k) a nucleotide sequence obtainable from a polynucleotide which is amplifiable from a nucleic acid obtained from a lamiaceous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:71 and SEQ ID NO:73 and a PCR primer selected from the group consisting of SEQ ID NO:72 and SEQ ID NO:74, wherein said nucleotide sequence is hybridizable with a nucleotide sequence complementary to the nucleotide sequence of (e) or (f), in 0.9 M NaCl, 0.09 M citric acid at 65°C, and

(l) a nucleotide sequence obtainable from a polynucleotide which is amplifiable via the RACE process from a nucleic acid obtained from a monocotyledon with a PCR primer selected from the group consisting of SEQ ID NO:77 and SEQ ID NO:78, wherein said nucleotide sequence is hybridizable with a nucleotide sequence complementary to the nucleotide sequence of (g) or (h), in 0.9 M NaCl, 0.09 M citric acid at 65°C.

I<sup>2</sup> **Claim 4.** (Three Times Amended) The isolated nucleic acid according to claim 1, wherein the leguminous plant in (i) is broad bean.

I<sup>3</sup> **Claim 7.** (Three Times Amended) The isolated nucleic acid according to claim 1, wherein the leguminous plant in (j) is soybean.

I<sup>4</sup> **Claim 11.** (Three Times Amended) The isolated nucleic acid according to claim 1, wherein the lamiaceous plant in (k) is Japanese artichoke.

I<sup>5</sup> **Claim 15.** (Three Times Amended) The isolated nucleic acid according to claim 1, wherein the monocotyledon in (l) is a gramineous plant.

I<sup>6</sup> **Claim 30.** (Five Times Amended) A chimera gene comprising:  
a nucleic acid isolated from a plant comprising a nucleotide sequence coding for an amino acid sequence of a protein which produces raffinose by combining a D-galactosyl group through an  $\alpha(1\rightarrow6)$  bond with a hydroxyl group attached to the carbon atom at position 6 of a D-glucose residue in a sucrose molecule, wherein

said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

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- (a) a nucleotide sequence of SEQ ID NO:1,
  - (b) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:2,
  - (c) a nucleotide sequence of SEQ ID NO:3,
  - (d) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:4,
  - (e) a nucleotide sequence of SEQ ID NO:5,
  - (f) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:6,
  - (g) a nucleotide sequence of SEQ ID NO:7,
  - (h) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:8,
  - (i) a nucleotide sequence obtainable from a polynucleotide which is amplifiable from a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:9, SEQ ID NO:15, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, and SEQ ID NO:58 and a PCR primer selected from the group consisting of SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:17, and SEQ ID NO:53, wherein said nucleotide sequence is hybridizable with a nucleotide sequence complementary to the nucleotide sequence of (a) or (b), in 0.9 M NaCl, 0.09 M citric acid at 65°C,

(j) a nucleotide sequence obtainable from a polynucleotide which is amplifiable from a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:12, SEQ ID NO:19, SEQ ID NO:65, and SEQ ID NO:68 and a PCR primer selected from the group consisting of SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:21, and SEQ ID NO:70, wherein said nucleotide sequence is hybridizable with a nucleotide sequence complementary to the nucleotide sequence of (c) or (d), in 0.9 M NaCl, 0.09 M citric acid at 65°C,

Ib  
COO't. (k) a nucleotide sequence obtainable from a polynucleotide which is amplifiable from a nucleic acid obtained from a lamiaceous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:71 and SEQ ID NO:73 and a PCR primer selected from the group consisting of SEQ ID NO:72 and SEQ ID NO:74, wherein said nucleotide sequence is hybridizable with a nucleotide sequence complementary to the nucleotide sequence of (e) or (f), in 0.9 M NaCl, 0.09 M citric acid at 65°C, and

(l) a nucleotide sequence obtainable from a polynucleotide which is amplifiable via the RACE process from a nucleic acid obtained from a monocotyledon with a PCR primer selected from the group consisting of SEQ ID NO:77 and SEQ ID NO:78, wherein said nucleotide sequence is hybridizable with a nucleotide sequence complementary to the nucleotide sequence of (g) or (h), in 0.9 M NaCl, 0.09 M citric acid at 65°C, and a promoter linked thereto.

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**Claim 32.** (Five Times Amended) A plasmid comprising a nucleic acid isolated from a plant comprising a nucleotide sequence coding for an amino acid sequence of a protein which produces raffinose by combining a D-galactosyl group through an  $\alpha(1\rightarrow6)$  bond with a hydroxyl group attached to the carbon atom at position 6 of a D-glucose residue in a sucrose molecule, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

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- (a) a nucleotide sequence of SEQ ID NO:1,
  - (b) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:2,
  - (c) a nucleotide sequence of SEQ ID NO:3,
  - (d) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:4,
  - (e) a nucleotide sequence of SEQ ID NO:5,
  - (f) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:6,
  - (g) a nucleotide sequence of SEQ ID NO:7,
  - (h) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:8,
  - (i) a nucleotide sequence obtainable from a polynucleotide which is amplifiable from a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:9, SEQ ID NO:15, SEQ ID NO:55, SEQ ID NO:56,

SEQ ID NO:57, and SEQ ID NO:58 and a PCR primer selected from the group consisting of SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:17, and SEQ ID NO:53, wherein said nucleotide sequence is hybridizable with a nucleotide sequence complementary to the nucleotide sequence of (a) or (b), in 0.9 M NaCl, 0.09 M citric acid at 65°C,

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(j) a nucleotide sequence obtainable from a polynucleotide which is amplifiable from a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:12, SEQ ID NO:19, SEQ ID NO:65, and SEQ ID NO:68 and a PCR primer selected from the group consisting of SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:21, and SEQ ID NO:70, wherein said nucleotide sequence is hybridizable with a nucleotide sequence complementary to the nucleotide sequence of (c) or (d), in 0.9 M NaCl, 0.09 M citric acid at 65°C,

(k) a nucleotide sequence obtainable from a polynucleotide which is amplifiable from a nucleic acid obtained from a lamiaceous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:71 and SEQ ID NO:73 and a PCR primer selected from the group consisting of SEQ ID NO:72 and SEQ ID NO:74, wherein said nucleotide sequence is hybridizable with a nucleotide sequence complementary to the nucleotide sequence of (e) or (f), in 0.9 M NaCl, 0.09 M citric acid at 65°C, and

(l) a nucleotide sequence obtainable from a polynucleotide which is amplifiable via the RACE process from a nucleic acid

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obtained from a monocotyledon with a PCR primer selected from the group consisting of SEQ ID NO:77 and SEQ ID NO:78, wherein said nucleotide sequence is hybridizable with a nucleotide sequence complementary to the nucleotide sequence of (g) or (h), in 0.9 M NaCl, 0.09 M citric acid at 65°C.

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**Claim 36.** (Five Times Amended) A method for metabolic modification, which comprises introducing a nucleic acid isolated from a plant comprising a nucleotide sequence coding for an amino acid sequence of a protein which produces raffinose by combining a D-galactosyl group through an  $\alpha(1\rightarrow6)$  bond with a hydroxyl group attached to the carbon atom at position 6 of a D-glucose residue in a sucrose molecule, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

- (a) a nucleotide sequence of SEQ ID NO:1,
- (b) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:2,
- (c) a nucleotide sequence of SEQ ID NO:3,
- (d) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:4,
- (e) a nucleotide sequence of SEQ ID NO:5,
- (f) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:6,
- (g) a nucleotide sequence of SEQ ID NO:7,



(h) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:8,

(i) a nucleotide sequence obtainable from a polynucleotide which is amplifiable from a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:9, SEQ ID NO:15, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, and SEQ ID NO:58 and a PCR primer selected from the group consisting of SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:17, and SEQ ID NO:53, wherein said nucleotide sequence is hybridizable with a nucleotide sequence complementary to the nucleotide sequence of (a) or (b), in 0.9 M NaCl, 0.09 M citric acid at 65°C,

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COJ4. (j) a nucleotide sequence obtainable from a polynucleotide which is amplifiable from a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:12, SEQ ID NO:19, SEQ ID NO:65, and SEQ ID NO:68 and a PCR primer selected from the group consisting of SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:21, and SEQ ID NO:70, wherein said nucleotide sequence is hybridizable with a nucleotide sequence complementary to the nucleotide sequence of (c) or (d), in 0.9 M NaCl, 0.09 M citric acid at 65°C,

(k) a nucleotide sequence obtainable from a polynucleotide which is amplifiable from a nucleic acid obtained from a lamiaceous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:71 and SEQ ID NO:73 and a PCR primer

selected from the group consisting of SEQ ID NO:72 and SEQ ID NO:74, wherein said nucleotide sequence is hybridizable with a nucleotide sequence complementary to the nucleotide sequence of (e) or (f), in 0.9 M NaCl, 0.09 M citric acid at 65°C, and

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COD'4. (1) a nucleotide sequence obtainable from a polynucleotide which is amplifiable via the RACE process from a nucleic acid obtained from a monocotyledon with a PCR primer selected from the group consisting of SEQ ID NO:77 and SEQ ID NO:78, wherein said nucleotide sequence is hybridizable with a nucleotide sequence complementary to the nucleotide sequence of (g) or (h), in 0.9 M NaCl, 0.09 M citric acid at 65°C, into a host organism or a cell thereof, so that the content of raffinose family oligosaccharides in the host organism or the cell thereof is changed.

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I<sup>9</sup> **Claim 40.** (Three Times Amended) An isolated nucleic acid comprising (i) a polynucleotide having a sequence that encodes a protein having an amino acid sequence selected from the group consisting of SEQ ID NOS:2, 4, 6, or 8 or (ii) a polynucleotide having a sequence complementary to said sequence.

**Claim 41.** (Three Times Amended) An isolated nucleic acid comprising (i) a polynucleotide having a nucleotide sequence selected from the group consisting of SEQ ID NOS:1, 3, 5, or 7 or

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CDJ<sup>4</sup> (ii) a polynucleotide having a sequence complementary to said  
sequence.

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Attached hereto is a marked-up version of the changes made to  
the application by this Amendment.